

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

FINAL

Conditional Major, Construction / Operating

Permit: F-07-052 R1

Flowers Baking Co. of Kentucky LLC.

1755 Parkway Drive, Bardstown, KY 40004

September 12, 2008

Herbert Campbell, Reviewer

SOURCE I.D. #: 021-179-00061

SOURCE A.I. #: 97789

ACTIVITY #: APE20080002

CURRENT PERMITTING ACTION:

MINOR PERMIT REVISION - F-07-052 R1:

An application was received on August 19, 2008 for the minor revision of Permit F-07-052 R1. The minor revision states that the source is installing one new bread baking oven emission unit 04 (ES-4) processing 16,200 pounds per hour dough to produce packages of bread, using a 9.45 MMBtu/hr natural gas burning bread-oven and associated catalytic oxidizer (CDES-4) to control VOC emissions at 95% efficiency and updating the size of the two boilers (Emission Unit 02) that have yet to be installed at the facility by reducing each boiler from 6.28 MMBtu/hr to 4.2 MMBtu/hr. The source does not propose to increase the current source wide VOC emission limit of 90 tons per year. The source will remain a conditional major following the proposed modifications. The new unit will operate under the same applicable regulations for emission unit 01.

PAST PERMITTING ACTIONS:

SOURCE DESCRIPTION:

Flowers Baking Company of Kentucky, LLC, submitted an application to the Division on September 12, 2007 to construct and operate bread manufacturing at 1755 Parkway Drive, Bardstown, Kentucky. The facility will process 11,200 pounds per hour dough to produce packages of bread, using a 7 MMBtu/hr natural gas burning bun-oven and two natural gas fuel boilers rated each at 6.28 MMBtu/hr for steam. Baking dough has the potential to emit VOC above the major source threshold of 100 tons/year. The facility has requested a federally enforceable permit. A ninety five (95) percent efficient thermal oxidizer will be installed on the oven for destruction of the VOC and HAPs. Controlled emissions of the baking oven shall reduce VOC emissions below the major source threshold. This permit is being issued as federally enforceable state origin (FESOP) permit for non- major source (Conditional Major).

APPLICABLE REGULATIONS

401 KAR 59:015, New Indirect Heat Exchangers, applicable to an emissions unit with a capacity less than 250 MMBtu/hr and commenced on or after April 9, 1972.

401 KAR 59:010, New process operations, applicable to a unit commenced on or after July 2, 1975

COMMENTS:

EMISSION UNIT 01:

Pursuant to 401 KAR 52:030, Section 26, the permittee shall install, calibrate, maintain and operate the oven and the emission control device according to manufacturer's specifications.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall monitor amounts of all dough processed. The permittee shall calculate and record the monthly VOC emissions. The VOC emissions from the operation of the oven shall be determined based on emission factor derived from the equation given in AP-42, Section 9.9.6 – Bread Baking, February 1997:

$$\text{VOC lb/ton of dough} = 0.9 Y_i + 0.19 5T_i - 0.51 S - 0.86 T_s + 1.90$$

Where Y_i = initial percent of yeast

T_i = total yeast action time in hours

S = final (Spike) percent of yeast

T_s = spike time in hours

(For $Y_i = 3.2$, $S = 0$, $T_i = 3.2$, and $T_s = 1.2$; then VOC emission is 5.564 lbs/ton of dough)

The permittee shall monitor the fuel usage of the oven and the thermal oxidizer.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall keep monthly records of dough produced. Total actual emissions for VOCs shall be calculated each month (tons per month) based upon the amount of dough processed. The permittee shall also keep records of twelve (12) months rolling total for VOC emissions. These records shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality.

Permittee shall maintain records of monthly fuel and monthly dough material usage, hours of operation of the oven, the thermal oxidizer shutdown times while oven being operated, current MSDS, and emissions calculations.

EMISSION UNIT 02:

Pursuant to 401 KAR 59:015, Section 4(1)(c), particulate emissions shall not exceed 0.53 lb/MMBtu, each, based on a three-hour average.

Pursuant to 401 KAR 59:015 Section 4 (2), visible emissions shall not exceed twenty (20) percent opacity except:

a) that a maximum of forty (40) percent opacity shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning of the fire box or blowing soot;

b) for emissions during building a new fire for the period required to bring up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Pursuant to 401 KAR 59:015, Section 5(2) sulfur dioxide emission shall not exceed 2.73 lb/MMBtu, based on a twenty-four- hour average.

While burning natural gas, this unit is considered to be in compliance with PM, SO₂ and opacity standard.

Emission Unit 03:

Pursuant to 401 KAR 59:010, Section 3(2), particulate emissions into the open air shall not exceed 34 lb/hr based on a three hour average.

Pursuant to 401 KAR 59:010, Section 3(1)(a), any continuous emissions into the open air shall not exceed twenty (20) percent opacity based on a 6 minute average.

Compliance demonstration:

The efficiency of the vacuum and bin vent filter of each silo shall be maintained at 99%.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall perform a qualitative visual observation of the opacity of emissions from the stack on a weekly basis and maintain a log of the observations. If visible emissions from the emission point are seen, then the permittee shall determine the opacity of emissions by U.S. EPA Reference Method 9 and initiate an inspection of the equipment for any necessary repairs.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall monitor the processing rates and hours of operation on a daily basis.

Permittee shall maintain records of processing rates, hours of operation, log of opacity observations and records regarding the maintenance and operation of the control units.

Emission Unit 04:

Pursuant to 401 KAR 52:030, Section 26, the permittee shall install, calibrate, maintain and operate the oven and the emission control device according to manufacturer's specifications.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall monitor amounts of all dough processed. The permittee shall calculate and record the monthly VOC emissions. The VOC emissions from the operation of the oven shall be determined based on emission factor derived from the equation given in AP-42, Section 9.9.6 – Bread Baking, February 1997:

$$\text{VOC lb/ton of dough} = 0.9 Y_i + 0.19 5T_i - 0.51 S - 0.86 T_s + 1.90$$

Where Y_i = initial percent of yeast

T_i = total yeast action time in hours

S = final (Spike) percent of yeast

T_s = spike time in hours

(For $Y_i = 7.1$, $T_i = 1.3$, $S = 0$, and $T_s = 0$; then VOC emission is 8.8985 lbs/ton of dough)

The permittee shall monitor the fuel usage of the oven and the thermal oxidizer.

Pursuant to 401 KAR 52:030, Section 26, the permittee shall keep monthly records of dough produced. Total actual emissions for VOCs shall be calculated each month (tons per month) based upon the amount of dough processed. The permittee shall also keep records of twelve (12) months rolling total for VOC emissions. These records shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality.

Permittee shall maintain records of monthly fuel and monthly dough material usage, hours of operation of the oven, the thermal oxidizer shutdown times while oven being operated, current MSDS, and emissions calculations.

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

In accordance with 401 KAR 52:030, Section 1, and to preclude the applicability of 401 KAR 52:020, source wide VOC emissions from the baking oven, the boilers, and all insignificant activities shall not exceed 90 tons/year on a twelve-month rolling total. Maximum single HAP (acetaldehyde) emissions shall not exceed 9 tons per year and combined HAP shall not exceed 22.5 tons per year.

OPERATIONAL FLEXIBILITY:

The source is not restricted as to hours of operation or quantity of product produced while remaining within the caps above.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

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